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Dynamics of grazing policy and practice: environmental and social impacts in three communal areas of southern Africa

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ABSTRACT

This paper traces the history of grazing policy, its conceptual basis, practical implementations and outcomes, in three southern African countries. In spite of the divergent environmental conditions facing pastoralists in the Highlands of Lesotho, Botswana's southern Kalahari and the Namaqualand succulent karoo in South Africa, they have all been subjected to similar grazing and rangeland management policies. The theoretical underpinnings of such policies have their origins in a development paradigm and ecological theory derived from northern temperate environments and are directly related to two persistent and powerful narratives: 'land degradation' and 'the tragedy of the commons'. Policy and development initiatives were implemented in order to overcome the perceived causes of these negative scenarios, such as overstocking, open access tenure and low output subsistence production. They typically ignored the multi-purpose goals of traditional pastoral systems and emphasized commercialisation of livestock farming and privatisation of communal land, which resulted in the weakening or destruction of local, traditional land management institutions. Such policies have survived the transitions from colonial rule to independence and from apartheid to democracy. We argue that these powerful and pervasive ideas, when applied to grazing policies, have caused the very problems they were formulated to prevent.

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1. Introduction

The three case studies presented here grew out of the shared experience of researchers working within an EU funded

project¹, which specifically focussed on assessing the sustainability of three diverse rangeland management systems in southern Africa and to identify viable policy options that would lead to improvements in both the welfare of

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communities and their environments. In spite of differences in climate, topography and vegetation, pastoralists in South Africa, Lesotho and Botswana were influenced by a history of agricultural policy based on similar notions of rangeland ecology and management. Furthermore, notwithstanding differences in the grazing policies were implemented in the three countries in such a way that, they resulted in analogous negative consequences, for pastoralists and their environments.

2. The theoretical basis of southern Africa's post-colonial rangeland policies

The form and content of rangeland management policy in southern Africa is the result of a three layered conceptual model of development, where two powerful environmental narratives of *land degradation* and the *tragedy of the commons* are applied to the *modernisation model* of development.

Decolonisation of many Sub-Saharan African countries in the 1960s was followed by the processes of nation building and modernisation (Smith, 1965; Kothari, 1976; Shamuyarira, 1976; Long, 1977). Former colonies inherited a model of development established by the advance of Europe and America towards industrial and socio-economic progress and sophistication, which came to be popularly known as modernisation. A major part of the campaign towards modernisation was the commercialisation of agriculture, characterised by the shift from subsistence to commercial farming, from communal ownership to privatisation of farming land and from traditional institutions of land management to modern ones. Analysis of the rangeland policy in the three case studies presented here reveal an extensive application of the ingredients of the modernisation model; and the *environmental degradation* and *tragedy of the commons* narratives have been used to advance this perspective.

In southern Africa, the livestock industry became a major target of the modernisation model of development and its attendant policies. Initiators of new policies such as the Tribal Grazing Land Policy (TGLP) in Botswana, Rangeland Management Areas (RMA) in Lesotho and Betterment Schemes during apartheid and more recently the Land Redistribution and Agricultural Development (LRAD) policy in South Africa have advanced environmental narratives to support their view that the livestock industry needs to be modernised.

It is commonly accepted by experts within international bodies such as the World Bank, UN, FAO, and national agencies such as USAID, DFID, as well as environmental NGOs, usually in collaboration with national governments, that Africa's agricultural land is severely degraded. The main causes are attributed to overpopulation (Kaplan, 1994), overstocking, overgrazing and backward farming practices (Cleaver and Donovan, 1995; Cleaver and Schreiber, 1996). These causes of environmental degradation have become the 'received wisdom' of environmental professionals and a dominant view in environmental management policy development (Leach and Mearns, 1996). This land degradation narrative is typically stated in the following terms:

[There are] strong synergies and causality chains linking rapid population growth, degradation of the environmental resource base, and poor agricultural production performance. Traditional African crop and livestock production methods [...], traditional land-tenure systems and land use arrangements, and traditional gender roles in production and household maintenance systems were well suited to the survival needs on a fragile environmental resource endowment when population densities were low and populations growing slowly. But the persistence of these traditional arrangements and practices, under severe stress from population growth in the past 30–40 years, is causing severe degradation of natural resources, which in turn, contributes to agricultural stagnation (Cleaver and Schreiber, 1996, p. 2).

Although this view has been strongly contested by many scholars (e.g., Leach and Mearns, 1996; Dahlberg and Blaikie, 1999; Mazzucato and Niemeijer, 2001), it remains popular among environmental policy makers in Sub-Saharan Africa (Stocking, 2000). Indeed, Cleaver and Schreiber's (1996) book is fairly recent, indicating that the environmental degradation narrative still has a following.

The tragedy of the commons narrative derives from a powerful metaphor used by Hardin to argue for control of global population (Hardin, 1968) and was a logical extension and complement of the land degradation narrative. It is based on the argument that when a resource is held in common, with many people having access to it, a self-interested rational actor will decide to increase his or her exploitation of the resource since he or she receives the full benefit of the increase, but the costs are spread among all users. The result of each person thinking this way, however, is the ruin of the commons, and thus of everyone using it. When applied to traditional African pastoralism, the result is overgrazing, soil erosion and bush encroachment. Stocking rates are assumed to exceed the ecological carrying capacity of land, making production unsustainable and off-take per animal sub-optimal. Land-tenure practices are blamed for discouraging private investment and encouraging higher stocking rates; livestock farmers exploit an area, overexploit it and move on. This view portrays African pastoralism as a destructive and maladaptive system, which needs to be changed before disaster strikes.

The land degradation and tragedy of the commons narratives are based on three basic assumptions:

- (1) that African pastoral ecosystems are potentially stable (equilibrium) systems;
- (2) that these potentially stable systems are frequently destabilized by improper use on the part of pastoralists; and
- (3) that alterations of system structure (reducing livestock numbers, changing land-tenure patterns, etc.) are needed to return these systems to an equilibrium and more productive state (Ellis and Swift, 1988).

These assumptions are, in essence, in accord with principles of the trend and succession model of rangeland management. According to this model, grazing pressure is balanced

against the successional trend of an orderly and predictable process where plants replace each other to maintain a stable sub-climax. It follows that if rangeland carrying capacity is exceeded, the equilibrium between grazing pressure and the regenerative pressure of the vegetation will be upset, resulting in a deterioration in the state of the rangeland environment (Stoddart et al., 1975). Where grazing pressure is equal and opposite to the successional tendency, an equilibrium is achieved in the vegetation at a set stocking rate. Therefore, it is envisaged that sustainable yields of livestock products can be harvested from such an equilibrium.

These views of the social and ecological basis of African communal grazing systems have been widely challenged (Sandford, 1983; Homewood and Rogers, 1991; Behnke and Scoones, 1993; Sullivan and Rohde, 2002; Homewood, 2004; Vetter, 2004). Non-equilibrium models of ecosystem functioning are now thought to have an important role in pastoral systems, where highly variable rainfall creates a situation where livestock numbers rarely reach a balance with available grazing resources. These suggest that opportunistic pasture management is a more rational strategy than adherence to fixed-stocking rates, in non-equilibrium, highly variable semi-arid ecosystems (Abel and Blaikie, 1989; White, 1993; Leach and Mearns, 1996; Sullivan and Rohde, 2002; Cullis and Watson,

2004). Degradation due to overgrazing is unlikely in situations where drought drastically reduces stock numbers from time to time, or where pastoralists are able to move away from drought stricken regions temporarily. This is not to say that degradation never occurs in arid and semi-arid rangelands, or that grazing does not have an impact on vegetation. Cases of degradation related to overstocking may exist, but the ultimate causes of this are often due to political factors that confine livestock owners to inappropriately small areas of rangeland or destroy traditional institutional arrangements for managing resources.

While this paper is not concerned with elaborating on the 'tragedy of the commons' thesis or the debate surrounding degradation related to equilibrium ecological dynamics, the three case studies presented here show the weaknesses of using such conceptual frameworks as a basis for sustainable communal grazing policy.

3. Botswana—the southwestern Kalahari

The Kgale District in western Botswana is semi-arid with rainfall varying from 210 mm to 330 mm per annum. The Matsheng area of this district is situated some 500 km west of Gaborone (Fig. 1). It consists of four villages located in

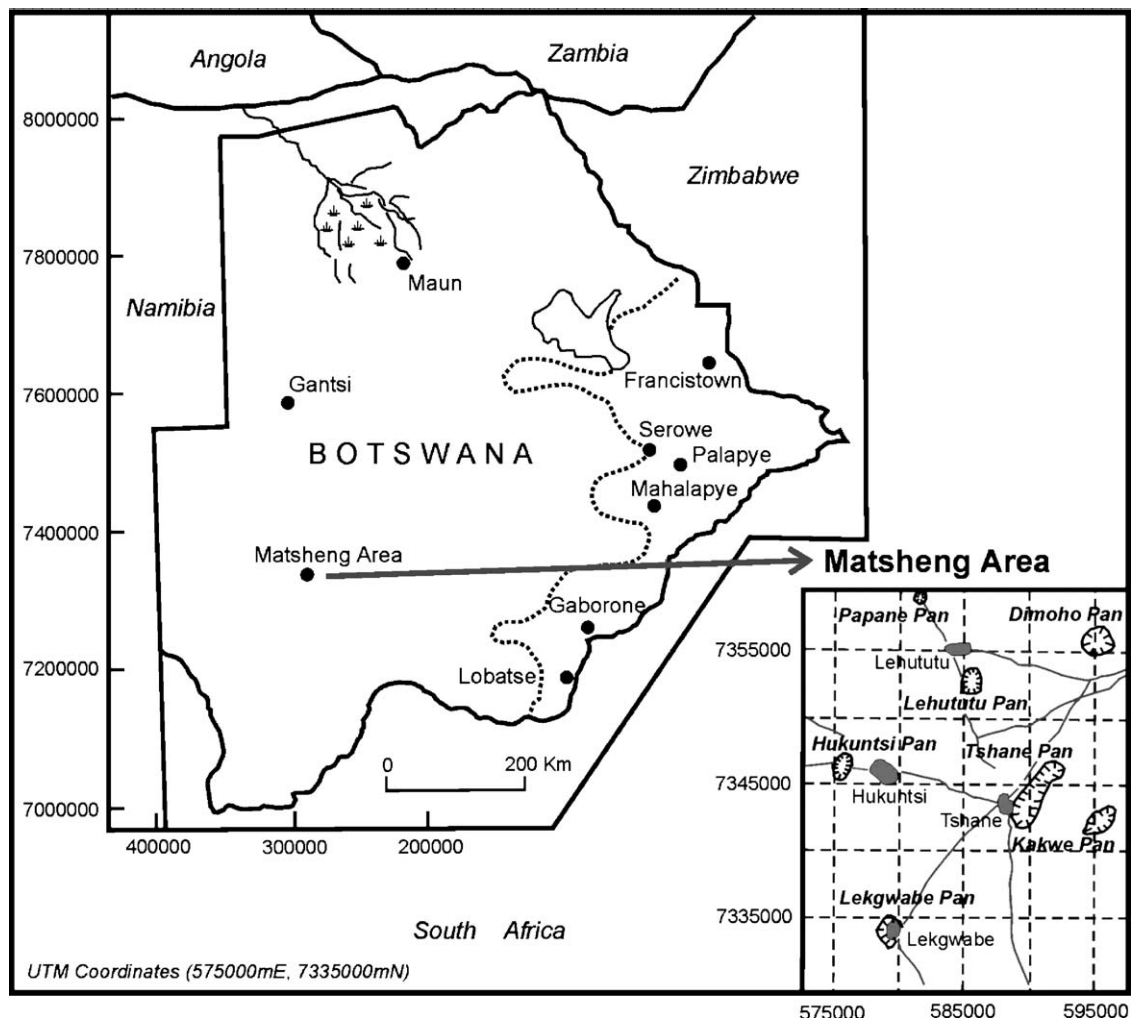


Fig. 1 – The Matsheng area of Botswana.

communally-managed rangelands as well as many small settlements in the surrounding wildlife management areas (WMA) where priority is given to wildlife conservation (Chanda and Magole, 2001). The local economy is heavily dependent on the livestock industry, supplemented by arable production and intermittent hunting and gathering activities.

Cattle production was introduced in the Matsheng area by the Bangoloka at the beginning of the 19th century (Kuper, 1970; Parsons and Crowder, 1988). The numerous pans in the area were the focus of early settlement because they were sources of surface and pit-well water during the rainy and dry seasons (Chanda and Magole, 2001; Magole, 2003).

The British government declared a protectorate over Botswana in 1885 and by 1889 European freehold ranches were established near the Matsheng area in Ghanzi. In 1905, the first livestock support office dealing with veterinary activities was established for the country. This was essentially to ensure protection of the livestock industry and preserve its external market (White, 1993). Throughout the first half of the 20th century, cattle posts multiplied westwards into the Kalahari sandveld as more wells and boreholes were established. People with cattle applied to their chiefs for rights to establish cattle posts around water points within the commonage. The development of private water points ushered in *de facto* privatisation of the surrounding grazing land, as borehole owners had exclusive rights to the water, in an environment devoid of perennial surface water sources for livestock.

The authority of the chiefs in land allocation and management was removed in 1968 through the Tribal Land Act, which established the Tribal Land Boards with the objective of reducing arbitrary land allocations. However, the traditional grazing rights of communities were retained in the Act which brought to a close in the traditional common property grazing regime and inadvertently introduced an open access regime on the commonage. In the Matsheng, herding and opportunistic grazing movements virtually ceased following this Act (Magole, 2003).

The post-colonial government gave borehole owners preferential rights over the surrounding area and no other borehole could be drilled within a radius of 8 km. This was an attempt to control heavy grazing around contiguous boreholes but in practice reinforced *de facto* privatisation of grazing land around private water points, a process that was to be given legal backing through the adoption and implementation of the Tribal Grazing Land Policy (TGLP) and the fencing component of the National Policy on Agricultural Development (NPAD).

3.1. Tribal Grazing Land Policy (TGLP)

The TGLP had both environmental protection and socio-economic development objectives, expressly focusing on the livestock sector which at the time was the mainstay of the national economy (Chambers and Feldman, 1973). Specifically, TGLP had the following objectives:

1. To encourage improved range management and increased productivity by promoting rotational grazing, controlled breeding, early weaning, daily watering and bone meal feeding necessitating extensive fencing and the exclusive ownership of land.
2. To safeguard the interests of the poor by moving large livestock owners and their herds out of the overstocked and overgrazed communal areas.
3. To close the gap between the rich and the poor by enhancing the skills and knowledge of all farmers.
4. To reserve areas for future use by those (such as the Basarwa), who were not livestock farmers. Land could also be designated for alternative uses such as wildlife conservation and cultivation.

Implementation of TGLP began in 1979, and by 1991, 10 ranches had been demarcated in the Matsheng area, although only 8 of these had been allocated by 2000 (Chanda, 2000). Nationally, 6 of the 10 districts of the country were affected by the policy, with a total of 332 ranches allocated out of 501 demarcated.

Several reviews of the performance of the TGLP reached the conclusion that the policy and its assumptions have remained largely unmet (e.g. Tsimako, 1991; White, 1993; Perkins and Thomas, 1993; Peters, 1994; Magole, 2003). In the early 1990s, only 15–25 % of the ranches had lived up to policy expectations nationally (Van Der Jagt, 1993), although according to the government this situation has since changed for the better (Government of Botswana, 1997). From recent survey data (Chanda, 2000; Magole, 2003), none of the eight ranches in the Matsheng could be placed among the success stories.

Better grazing management and increased productivity has not been attained in the Matsheng area for two reasons. Firstly, of the eight ranches, four are completely unfenced and one is partially fenced. Thus, rotational grazing and controlled breeding are out of the question for the unfenced farms, as is excluding communal livestock from their ranches. The main explanation offered by the farmers was that fencing is too expensive. However, the fact that all the unfenced ranches were 'group ranches' suggests the problem may also be related to lack of co-operation or unanimity within groups over fencing. According to the findings of a study of ranch viability by the Planning and Statistics Unit of the Ministry of Agriculture (1997), 388 livestock units is the minimum required to run a viable ranch in Kgalagadi. Only one of the ranchers interviewed, fell in this category.

The second major obstacle to the attainment of improved range management is the scarcity of fresh or sweet underground water in the area. Only three of the eight ranches had potable water for the consumption of livestock, and two of these were unfenced. The fact that grazing impacts equivalent to the kind observed on communal rangelands around village pans were also evident on the only fenced and paddocked farm in the Matsheng area suggests the existence of other factors bearing on grazing management. Absentee ranch management is one important aspect of this; none of the Matsheng ranchers reside on their farms. Most farmers live in the Matsheng villages, the rest reside in Gaborone, only occasionally visiting their ranches to check on herders, deliver various requisites or vaccinate livestock. Indeed, many are in full-time employment or businesses. Ranching is not a full-time enterprise for any of the farmers in the area. This means that the day to day running of the ranches is in the hands of herders who tend to manage their herds in the traditional cattle-post manner (Tsimako, 1991).

White (1993) claims that cattle productivity under TGLP has not increased significantly. In his estimation, the average calving rates on the TGLP ranches and on communal grazing land were 59% and 57%, respectively. This is in contrast to the official calving rates of 60% for ranches and 50% for traditional livestock (Government of Botswana, 1997; NDP8, p. 255). Nor was there any evidence of significantly higher cattle off-take among Matsheng ranches as compared to the traditional sector. Off-take rates varied between 4% and 9% per annum (Chanda, 2000), compared to the expected off-take of 12.5% for ranches and 8% for communal livestock farmers (Government of Botswana, 1997). This suggests that traditional attitudes to cattle ownership and disposal have remained intact among Matsheng ranchers, making the prospects for high stocking rates all the more real.

The safeguarding of the interests of the poor has not been attained in the Matsheng area for several reasons. The absence of perimeter fencing around many of the ranches and the lack of non-saline water on some of them means that ranch animals can move to and graze freely in communal areas, and that these animals will depend in part or entirely on water points within the communal rangeland zone. In fact, several TGLP ranchers have wells or boreholes within the communal grazing zone (Chanda, 2000).

Traditionally, tribesmen are free to graze their animals anywhere within the communal rangelands. The acquisition of TGLP ranches did not terminate this right for the ranchers, but barred other tribesmen from accessing resources within the ranches. Ranch animals therefore benefited from grazing resources found in both communal and leasehold farms. Thus, instead of shifting the large herds from the communal rangelands, the creation of TGLP ranches simply contracted grazing land available to the communal livestock farmer, compounding the overstocking problem on that land, contrary to policy objectives (Tsimako, 1991; White, 1993; Magole, 2003).

Furthermore, the gap between the rich and poor livestock farmers in the Matsheng area has actually widened since the inception of TGLP ranches. There has, for instance, been no significant increase in the proportion of households owning cattle since the introduction of the ranches (Van Der Jagt, 1993). In fact, as socio-economic survey results have shown, livestock ownership in the Matsheng has remained severely skewed in favour of large livestock owners (Chanda and Magole, 2001; Amusa, 1999). Van Der Jagt (1993) has demonstrated that the number of small cattle herd owners has been on the decline in the Kgalagadi District as a whole since the implementation of TGLP ranches. Additionally, the creation of the ranches alienated the communal rangeland for purposes of hunting and gathering various veld products. All the ranchers interviewed were categorical about the enforcement of their exclusive rights over ranch resources, while retaining their right as tribesmen to access communal rangeland resources (Chanda, 2000; Magole, 2003).

Finally, no land has been reserved for future livestock production in the Matsheng area. However, a substantial amount of formerly communal land has been zoned into wildlife management areas (WMAs), where the conservation of wildlife is the primary objective. These areas are inhabited mainly by erstwhile hunter-gatherers, the Basarwa (Bushmen). Small-scale subsistence arable farming is also practiced

here and, contrary to the wildlife conservation objective, the government has actively been promoting livestock ownership among Basarwa in WMAs, as part of the strategy to sedentarise them. Therefore, from a wildlife conservation angle, this policy objective has been implemented, although the promotion of livestock production might eventually disadvantage wildlife management, as has been the case in the communal rangeland zone.

3.2. The National Policy on Agricultural Development (NPAD)

By 1991, it was clear that livestock production under TGLP was facing problems and a new agricultural development policy (NADP) was formulated and adopted. The aim of NADP was to provide subsidies to improve productivity in the livestock sub-sector by promoting the sustainable use of rangeland resources through fencing of communal grazing areas. This was rationalized in alarmist terms which are strikingly similar to those used in the tragedy of the commons and degradation narratives:

The present uncontrolled management of communal grazing lands is not only unproductive but has led to unprecedented range degradation... and soil erosion is getting worse in these areas. There is no way of either reversing the progressive range degradation together with soil erosion or improving productivity under the present system (Ministry of Agriculture, 1991, p. 10).

The solution proposed by the NPAD was to improve on and continue with TGLP. The policy argues that 'despite problems experienced during implementation, TGLP demonstrated that fenced farming is much more productive than the communal management system' (Ministry of Agriculture, 1991, p. 11). The evidence for this, the policy argues, is the fact that some farmers now supply high quality breeding stock which used to be available only through importation and that farmers have also ventured into diverse production systems and now practice artificial insemination which is cheaper than natural breeding. These assertions directly contradict assessment reports that show that TGLP ranching is not significantly more productive than the traditional sector, which has not eased overgrazing on the commonage, has not been viable for the majority of farmers, has failed to solve the equity issue, is fraught with problems of lack of water and failure by the majority of ranchers to erect perimeter fences or to keep their cattle off the commonage altogether. Certainly for the Matsheng area, the on-going creation of more ranches can only compound and replicate the observed problems. Why then has government decided to extend a policy that has on most accounts failed dismally?

One answer might be that the disempowering of the *dikgosi* and other traditional institutions involved in land management and the adoption of the TGLP and the fencing component of NPAD were geared "towards protecting the interests of the ruling elite" to whom, implicitly, "exclusion, control of land resources and opportunities to accumulate or increase wealth have become more important as driving

forces of policy than the stated issues of overstocking, overgrazing and land degradation” on communal lands (Magole, 2003, p. 217; Peters, 1994).

3.3. Environmental impacts of livestock grazing policies and practices: perceptions and reality

Policy makers contend that ranching promotes “the conservation of scarce agricultural resources” (Government of Botswana, 1997, p. 247). However, in the Matsheng, these advantages of ranching are presently largely theoretical. We know, for instance, that the persistence of dual grazing rights has promoted overgrazing on the commonage and livestock encroachment into wildlife management areas (WMAs), thereby impacting negatively on wildlife habitats. It has also been shown that fencing has obstructed migratory routes of wildlife species, especially for wildebeest and hartebeest. Migration is one of the survival strategies of these wildlife species and fences are central to any explanation of the dramatic die-offs of migratory wildlife species that have occurred in the country in the last 10 years (Perkins and Ringrose, 1996). Intensified grazing on the commonage has also promoted bush encroachment and a decrease in the abundance of perennial palatable and nutritious grasses, thereby lowering biodiversity and the quality of the grazing environment.

The TGLP ranching regime in conjunction with the Tribal Land Act has undermined traditional common property management, exposing Botswana’s commonage to the dangers of open access livestock husbandry. While grazing policy has had minimal advantageous environmental and socio-economic impacts, it has created the foundations for the tragedy, not only of the commons, but also of the commoners as well, whereby the poor are removed from land allocated for ranching without offering them alternative sources of livelihood (Moleele and Ntsabane, 2002).

4. Lesotho Highlands

The Lesotho case study focuses on the Rangeland Management Association (RMA) in the Pelaneng-Bokong area of the Lesotho Highlands (Fig. 2). It illustrates how the promotion of RMAs in Lesotho’s rangelands is the culmination a century of livestock development policies and analyses the outcomes and implications of this for rangelands throughout the Lesotho Highlands.

The Pelaneng-Bokong area of 619 km² is located on the Higher Mountain Slopes and Lower Mountain Flats within the Mountain Zone of Northern Lesotho. It includes the Pelaneng-Bokong RMA of 36,000 ha lying between the Bokong and Malibamatso rivers and a control site (off-RMA) between the Motete and Malibamatso river catchments, in the highland areas of the Leribe and Butha-buthe districts. Mean annual rainfall in the study area ranges between 800 mm at Ha Sepinare in the south, 1900 m above sea level, and 1200 mm at Pela-Tsoeu at 3200 m on the escarpment in the northern cattle post area. The region is described as Upper Mountain Grazing at altitudes of 2900 m and above where it is covered by snow and frozen for most of the winter months and waterlogged in summer (Bawden and Carroll, 1968). The topography over

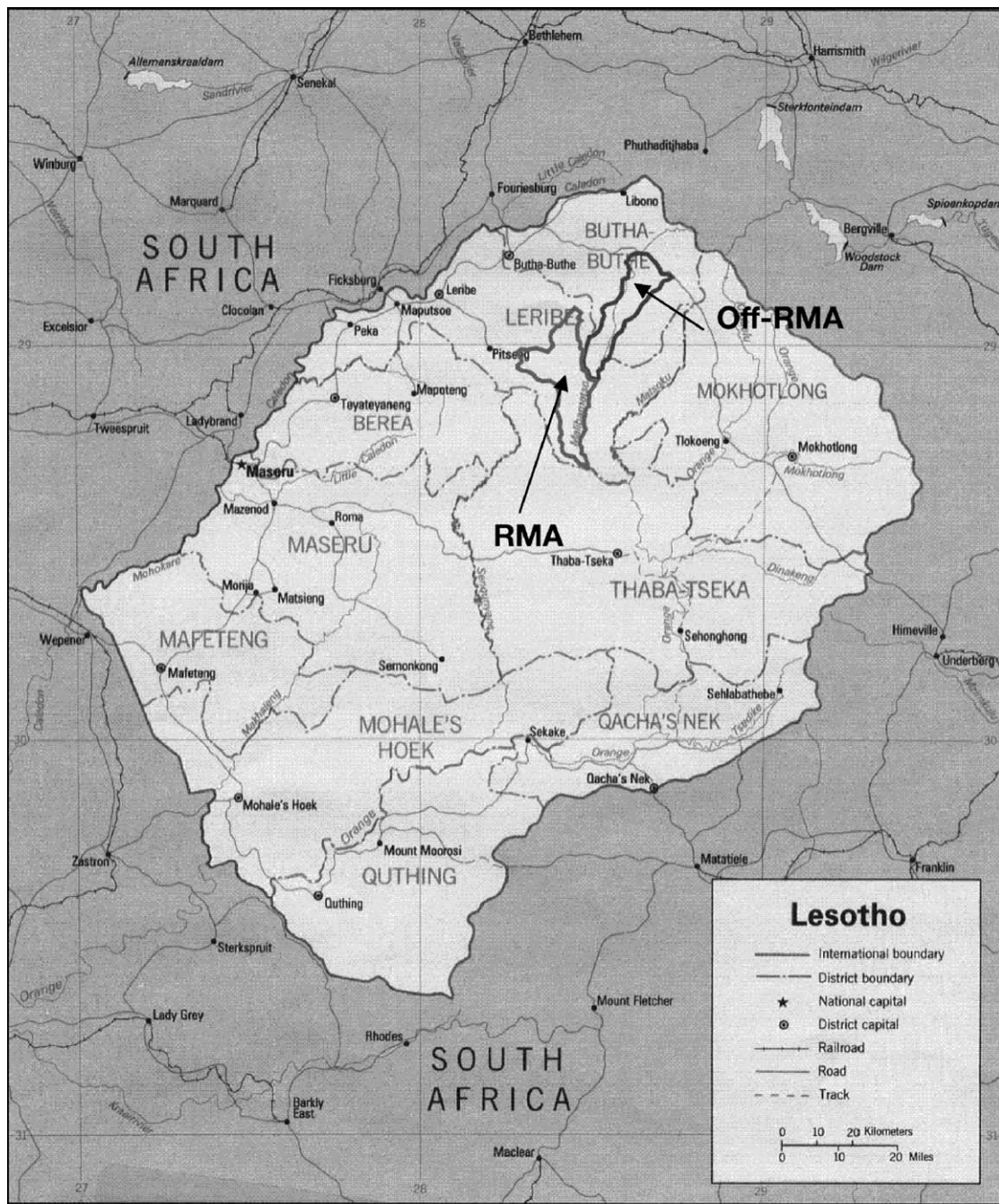
most of the study area is very steep and highly dissected on volcanic basalt. Slopes in excess of 60% are common in the higher areas.

The Basotho began to live permanently in the Maloti Mountains during the 1880s as a result of population pressure in the lowland areas. This was also a natural progression from the increasing importance of transhumance between the lowland and highland areas as part of the mixed peasant agricultural economy. In spite of the overwhelming importance of cash remittances from migrant labour, livestock remain important to the livelihood strategies of most households today. Cattle, sheep and goats are used as a vital source of cash to purchase food when agricultural production is low, when crops fail and wage income drops (LVAC, 2002; CARE, 2001, Kolavalli, 2002). Livestock also serve many socio-cultural functions including feasts, burial ceremonies, bride wealth, sacrifices and offerings.

Studies related to natural resource management and livestock production throughout the 20th century repeatedly cite traditional livestock practices as serious obstacles to reaching goals of economic growth and development. Communal grazing systems and weakened traditional local institutions controlling land tenure and land use are blamed for high stocking numbers and concomitant overgrazing and environmental destruction (Mphale et al., 1999; Lawry, 1986; Majoro et al., 2000). A series of corrective measures in the form of laws, regulations and policies by the colonial administration and the post-colonial Lesotho government have been implemented to improve rangeland condition and increase the value of livestock products (Swallow, 1991). In more recent years, international donor agencies have been important drivers of these policies, linking funding to implementation of their recommendations. These measures aim to transform agriculture from a semi-subsistence activity to a more commercially-oriented sector (Huisman, 1983) based on the belief that rangelands in good environmental condition will support superior quality livestock which, by realizing good prices at markets, will convince rangeland users that lower stocking numbers will produce higher rewards.

Traditionally, natural resource management was the responsibility of the Basotho chiefs. They executed all aspects of natural resource management: the allocation of grazing areas, granting of grazing permits, the protection of certain areas from grazing and the prosecution of violators of regulations. The authority of the chiefs was promulgated in the Laws of Lerotholi and in colonial proclamations that also placed the authority for resource management in the hands of the chiefs (Government of Lesotho, 1903). Grazing control, in particular, was customarily effected through the *Leboella* system that entails demarcation of grazing areas into zones that are rotationally grazed in order to encourage vegetation regeneration. These powers originally lay with chiefs who lived in the lowlands, but as the mountains became settled, a few chiefs living in the mountains were recognized. Despite the massive decline in transhumance and high resident populations, most mountain areas remain under the jurisdiction of senior chiefs in the lowlands (Turner, 2003).

Initial attempts to modify the regulation of highland grazing areas were first instituted in the 1920s by the colonial authorities. They demarcated areas (approximately 10,000–



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Fig. 2 – The Pelaneng-Bokong Rangeland Management Area (RMA) of the Lesotho Highlands and the off-RMA area referred to in the text.

16,000 ha) around dip tanks and used these as a basis for controlling the number of livestock that could be grazed in an area (Quinlan, 1990). A system whereby village grazing areas would be divided into three equal parts, each to be strictly reserved in rotation during winter months was implemented in 1937 (Swallow, 1991). These recommendations had much in common with the *Leboella* system, and explicitly aimed to support the power of the chiefs. Since independence in 1966, the chiefs' authority over rangelands has been weakened by central government, when village development committees and councils were given various roles in managing rangelands.

The 1969 Land Husbandry Act repealed the Laws of *Lerotholi* but in 1980 this was reversed by the Range Management and Grazing Control Regulations which reinstated many of the customary regulations and made chiefs once again responsible for grazing administration (Lawry, 1988). Subsequent interventions such as the delegation of land allocation to village development councils in 1992 and the subsequent removal of the chairmanship of chiefs of these councils in 1994 have resulted in the general dissolution of chiefly authority over land (Turner, 2003). In 2001, these councils were to be replaced by nominated interim local authorities but these

have not been instituted although local authority elections finally took place in May 2005.

Renewed attempts throughout the late 1980s, to reduce overgrazing were tried through programmes focusing on rangeland adjudication, breed exchanges, auction sales and culling programmes. These culminated in the Livestock Policy Implementation Plan drawn up in 1990, once again concentrating on reducing livestock numbers, increasing livestock productivity, marketing efficiency and establishing Range Management Associations (RMAs).

4.1. Range Management Associations

RMAs were promoted by USAID, based on the model used for Native American Reserves in the USA (Quinlan, 1990). They were designed to promote commercial livestock production and range improvement based on the idea that rangeland condition and productivity were driven by livestock stocking rates. This conviction was further influenced by the widespread notion that pastoralists exploit rangelands because they do not own them and, hence, have no long-term interest in their condition (Hardin, 1968; ILRI, 1998). It was, in this context, that giving users 'exclusive' rights to rangelands was regarded as a solution to rangeland problems.

The RMA concept had the following three major objectives:

- Improvement of range management practices within designated RMAs through the formation and establishment of Grazing Associations and also through the design and implementation of a grazing management plan.
- Animal improvement, pursued principally through the establishment of an association stud service and livestock extension activities to encourage stockholders to select livestock for desirable attributes and to cull less productive animals.
- Promotion of higher levels of market off-take of livestock products by upgrading wool and mohair shearing activities and providing a reliable cattle auction sales service.

The Pelaneng-Bokong RMA was established in 1988 and registered in 1990 under the Societies Act of 1966. It covers 17 villages under four area chiefs. The 1986 Population Census indicates that the RMA had a population of 5395 comprising 1058 households. By 1999, the population had increased by 40% to 7535 people in 1475 households.

The Pelaneng-Bokong RMA is managed by the Makhulo Pelaneng/Bokong as a Grazing Association. The following strategies are employed to fulfill the policy objectives:

- Areas which display extensive erosion features, or are invaded by *Chrysocoma* spp. and other plants which indicate rangeland degradation are not grazed until they show signs of improvement.
- The grazing areas are used on a rotational basis following an agreed plan.
- There are frequent examinations of the different grazing areas.
- The number of livestock utilizing the rangelands is determined by the Range Management Division officers stationed at the RMA site.

- Fodder for winter feeding is cultivated.
- Livestock improvement is promoted by using better breeding stock.
- Grazing control policies are examined annually.

The RMA is divided into three grazing areas. Grazing area A is summer grazing located at higher elevations and utilized between November and March. The B grazing area, at lower elevations, is used by livestock from April to May. The C grazing area is located around the villages and river valleys and is grazed mainly in winter from June to October. Grazing permits are issued by the RMA to paid up members while non-members are excluded from grazing areas under the jurisdiction of the RMA and restricted to the C grazing areas.

4.2. Environmental and social impacts of grazing policy: rhetoric and reality

A socio-economic survey of the RMA and adjacent off-RMA areas (GCSR, 1999) revealed a general consensus among communities that the rangeland was improving under RMA management. In particular, traditional medical practitioners concurred that some medicinal plants, which had previously disappeared, were re-emerging on the RMA rangelands. Community members attributed the improvement to proper monitoring of the rotational grazing system that had allowed recovery and regeneration of some species. In another study, higher levels of organic matter in soils in the RMA compared to off-RMA have been attributed to greater levels of erosion in off-RMA areas (Marake, 2000).

These differences may be due to the increased pressure on off-RMA areas rather than improvements at the RMA site. The Pelaneng-Bokong RMA has excluded summer grazing by livestock from both the lowlands and neighboring communities. These livestock are forced to share a diminished off-RMA area. The problem of overcrowding on off-RMA areas is further compounded by the fact that RMA members keep livestock in excess of those they are allowed to graze in the RMA in the off-RMAs. This results in resource gains by RMA members and an equivalent loss to the excluded off-RMA communities (GCSR, 1999; Rwambali, 2000).

Sefika (2000) argues that there is no discernable range improvement within the RMA area on the basis of grassland biomass: 397 kg/ha in RMA and 539 kg/ha in off-RMA areas. This he attributes to fewer livestock within the off-RMA areas due to rampant livestock theft. However, stock theft has also been reported by community members to be worse within the RMA, where improved livestock are seen to be more lucrative to thieves (Mphale et al., 1999).

The breeding programme promoted by the RMA has, according to the community members, translated into better quality livestock, which are more marketable and give better returns (Rwambali, 2000). While the potential of this move in improving the overall livelihood strategies of the community members is recognized, it has been observed by Quinlan (1990) that there are very few farmers who are interested in improving particular breeds, given that diversification of livestock types through crossbreeding has been a long-standing cultural practice of Basotho People.

A number of livestock auctions organized by the RMA have benefited both RMA members and non-members. However, a recent survey carried out at the study site in May/June 2004 revealed that in both the RMA and off-RMA, very few people sell livestock (Mphale et al., 1999). They regard livestock as a reserve asset and only sell livestock for cash in the face of dire need. Rural households in Lesotho constitute nearly 80% of the population and are the principal owners of Lesotho's livestock but animal products and sales contribute only 3.5% to national household incomes thus making livestock more of a saving than an active income source (Sechaba, 2000). These contradictions clearly cast doubts on the validity of the perceived ecological and economic improvements within the RMA area.

The establishment and management of the Pelaneng-Bokong RMA has not been without conflict and controversy:

- Cases of animosity between RMA members and people in off-RMA areas are reflected in acts of sabotage such as rangeland burning, trespassing and vandalizing of fences. Similar problems are reported on other RMA areas (Swallow, 1991; Sechaba, 1995; Lawry, 1988).
- The number of RMA members has decreased from 600 in 1989, to 332 in 1995 and 263 in 1999/2000. One reason given for the reduction in membership is the large distances between RMA headquarters and RMA villages, which results in poor communication and limited institutional engagements. Plans to decentralise have been thwarted by lack of funds.
- Complaints from RMA members regarding lack of disclosure by committee members of the association's assets and expenditure have become a common phenomenon. Relations between some chiefs and the Grazing Associations have also become strained since the A grazing areas, which currently belong to RMA used to be under the jurisdiction of these chiefs.

On the basis of Pelaneng-Bokong case study, it is clear that the RMA model, like other contemporary range projects, is directed at ameliorating the negative effects of heavy grazing on vegetation by promoting the development of a market economy on communal rangeland. This is seen not only as a means of improving livelihoods, but is also regarded as a mechanism for reducing the number of livestock, thus conserving rangeland resources. The RMA model does not take into account the fact that rural populations strive to maintain flexible systems of livestock production that effectively meet income, savings, and cultural needs and provide for a diversity of products.

The diminishing membership of the Pelaneng-Bokong RMA suggests that certain rangeland areas in Lesotho are becoming more exclusive; only members of the RMA are theoretically allowed to graze within these areas. This can be seen as a step towards the privatisation of the commons with a number of consequences including the loss of rights to land and livelihoods by an impoverished sector of the rural community, the overcrowding of off-RMA areas and increased conflict in rural areas.

Rangeland conservation policies in Lesotho are generally based on the premise that rural communities are the cause of overgrazing, erosion and rangeland degradation (Quinlan,

1990) and therefore programmes involving farmer education and stringent rangeland management regulations are emphasized (Mokuku and Linder, 1996). The conceptual models used in this approach tend to be simple, inflexible and reductionist in nature promising quick solutions to complex problems. The dynamics of human use of grassland and the impact of temporal and spatial climate variability (IRLI, 1998) do not inform the RMA model. It is this lack of insight into economic and cultural values and the imposition of overly simplistic stocking rate models based on commercial systems that render initiatives such as the RMA ineffective.

5. South Africa: the communal area of Leliefontein, Namaqualand

Namaqualand is often considered to be a peripheral or marginal area in South Africa, with a small, highly scattered rural population depending upon a few towns and mining centres for services and administrative facilities. Covering more than 50,000 km², Namaqualand is sparsely populated by about 66,000 people, 45% of whom live in the nine communal areas scattered throughout the district (Fig. 3).² Covering just over 30% of the area of Namaqualand, the communal areas are home to the descendants of the Nama-speaking Khoekhoen, the first herders in the region, who arrived here with their sheep more than 2000 years ago (Webley, 1986). Contact between Nama-speaking herders and San hunter-gatherers, and later with runaway slaves and white settlers resulted in today's diverse Afrikaans speaking population (Penn, 1995). Classified as "Coloureds" under the apartheid regime, they inhabit Namaqualand's communal areas as well as many of the region's towns and comprise the labour force on most white commercial farms.

The widely dispersed Coloured Communal Areas, many of which began as mission stations, places of refuge from the increasingly violent, marginalizing effects of frontier colonialism, are important social and administrative features of this landscape. Later, they became labour reserves for commercial farming and mining interests and today, although overcrowded and poor, they continue to provide a safety net against the uncertainties of contemporary life. Leliefontein is one such area comprised of 10 widely dispersed villages in a total of 221,000 ha (Fig. 3). Research conducted here between 1997 and 2004 forms the basis for the case study to follow.

Land use practices in Leliefontein are strongly influenced by the climate of the region, especially rainfall and temperature. Leliefontein spans the arid and semi-arid winter rainfall succulent karoo biome and the summer rainfall Nama karoo biome where mean annual rainfall varies from less than 50 mm in the northwestern areas to over 450 mm on the Kamiesberg massif (Desmet and Cowling, 1999).

The earliest historical records show that pastoral practice was largely patterned by movement between various seasonal climatic and ecological zones (Boonzaier et al., 1996). The first settlements in Namaqualand were established by missionaries during the early 19th century. Leliefontein's missionary

² District boundaries referred to in this report correspond with the pre-2000 Magisterial Districts.

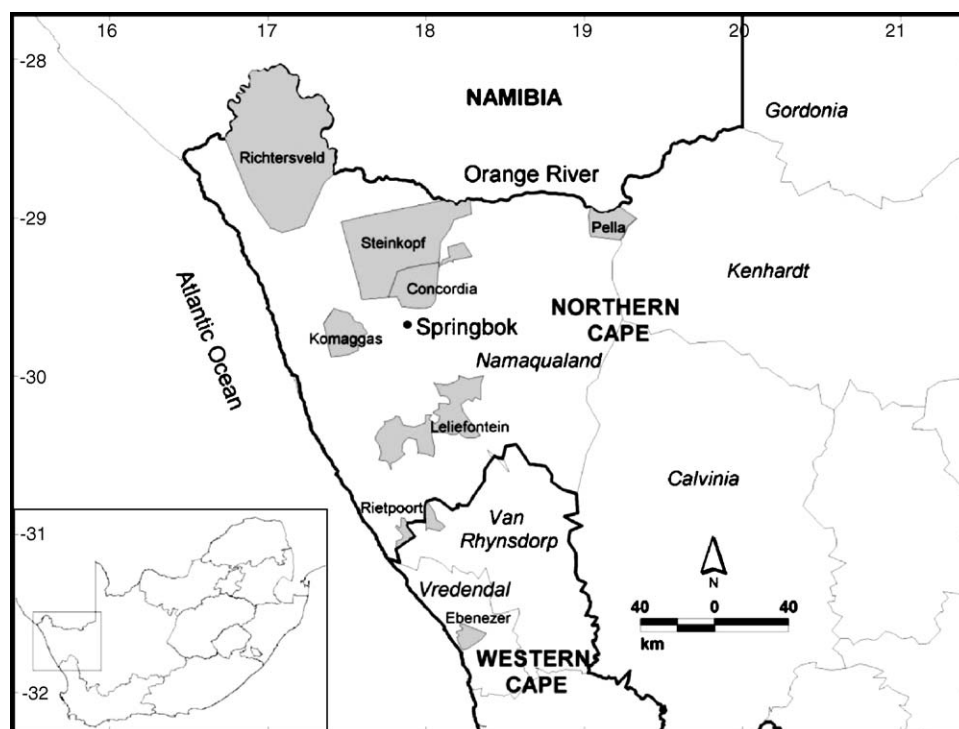


Fig. 3 – Map of a portion of the Northern Cape Province, South Africa, showing the communal areas (shaded).

established a number of outposts in order to follow his Namaqua congregation in the annual cycle of transhumance between two and more ecological zones encompassing an annual orbit of 100 km or so. These outposts were situated near reliable water supplies and eventually became settlements that today comprise the principal villages of the Leliefontein communal area (Leeuwenburg, 1972).

Although seasonal transhumance continued throughout the 1800s, it became increasingly restricted and less adaptable to seasonal climatic changes. This gradual sedentarisation occurred as a result of the alienation of large tracts of private land allocated to white farmers surrounding the mission and increasing population pressure within (CCR, 1880; Vos, 1928). These trends in land alienation, population growth, transhumance restrictions, cropping and herd composition would continue well into the 20th century.

Throughout the first half of the 20th century livestock farming remained the only viable internal economic activity within the reserve itself. Most people still lived in transportable *matjieshuts* (reed huts) and subsisted on a pastoral diet consisting of milk, meat and *veldkos* (wild foods) supplemented by wheat. In spite of this sedentarisation around the mission school and an increasing reliance on seasonal crop production, transhumance remained a central feature of life.

In 1950, the Group Areas Act confined 'Coloureds' to the reserve areas, thereby denying communal farmers access to non-privatised, state land across the reserve borders (Archer and Meer, 1997). Not only did the Group Areas Act result in a dramatic increase in the reserve population as a result of forced removals from other parts of the country, but also with the provision of pensions, many retiring coloured farm workers 'returned' to the reserves, often with their families and livestock. This expansion of the reserve population within

a limited land base was exacerbated as the new owners of adjacent commercial farms now fenced their land on the reserve boundaries with the assistance of government fencing subsidies allocated to white farmers only.

Whites were able to invest capital in commercial farming by amalgamating private farms while others moved off the land altogether; this depopulation of privately owned farms made it possible for whites to increase the size of individual land holdings, making commercial livestock farming much more viable. Many white commercial farmers bought second farms in the summer rainfall Bushmanland region to the west of Leliefontein, or in the succulent rich sandveld towards the coast, thereby increasing their management options and effectively mimicking pre-colonial transhumance herding patterns, a practice which continues today among many white farmers. The viability of commercial livestock farming was enhanced at the expense of communal farming. Newly erected fence lines coupled with a prohibition of coloured farming outside of the reserve meant that from about the late 1950s onwards, communal pastoral mobility as a response to drought and seasonal grazing conditions, was confined to discrete village grazing lands within the reserve.

Today, approximately 300 herds comprising 25,000 sheep and goats graze Leliefontein's communal lands.

5.1. Agricultural policy and land reform in Namaqualand

National grazing and agricultural policy has had very little impact on the environment of communal areas in Namaqualand such as Leliefontein. Although there have been many attempts at establishing local rules of rangeland use (starting in the 19th century), grazing regulations have been applied only intermittently. During apartheid, most national agricultural

policies were designed to promote the interests of white commercial farmers, using ecological models based on equilibrium/climax theories of plant succession as a justification for promoting the camp system, infrastructure grants, stock reduction schemes, drought relief programmes and a comprehensive National Grazing Strategy in 1985 (Hoffman and Ashwell, 2001). Such policies were predicated on the notion that extensive soil and vegetation degradation was occurring as a result of overgrazing. In Leliefontein, the grazing policies which encouraged neighbouring white farmers to fence their land, sink boreholes and initiate a paddock system with rotational grazing practices had a huge impact on the communal farmers since the porous borders became fixed, effectively enclosing the communal farmers within the overcrowded commonage. For the people living in Leliefontein, livestock movements, firewood collection and medicinal plant harvesting were thereafter restricted to the environments within the communal area only.

Local policies, promulgated by Reserve management boards between 1850 and 1990, did, however, attempt to control stock numbers and the movement of stock posts. These were often instigated at the behest of government officials in response to what they perceived as the danger inherent to the 'indolent, apathetic and non-progressive' population (Marais, 1968). Privatisation of the commons was also attempted several times over the last 120 years. In 1890, a Parliamentary Report stated:

With Individual Tenure established many of the idle, improvident and non-progressive sort will soon have to part with their holdings, and quit the institutions, making room for better men from elsewhere, probably of better blood, European as well as Native. This introduction of new blood, together with the action of the law of "the survival of the fittest", will, it is hoped, result in the development, in time, of communities composed of men of a higher type, possessing more industry, energy and enterprise, and thus better fitted to contend with the difficulties and drawbacks to progress natural to the country (Cape of Good Hope, 1890).

Ninety years later, the Rural Coloured Areas Law (Coloured Persons Representative Council) of 1979 established the basis for privatising much of the commons. It was decided to subdivide the Leliefontein reserve into 'economic units' and restrict residential rights to villages, in order to encourage entrepreneurship and the development of the region (Archer et al., 1989). It was thought that privatisation would lead to more 'developed' farming techniques, to better conservation of the area, and that subsequently this development would rid the area of the "whimsical and irrational" traditions which were retarding development.

The 47 farming units established in 1984 for the Leliefontein Communal Area ranged from 1500 ha to 6175 ha, depending on the local ecological conditions, with a mean size of 3248 ha. Thirty units were rented to individuals or syndicate groups, while the remaining 17 units were reserved for communal use. The majority of people who were granted economic units had other sources of income—they were typically shop owners, teachers and mine workers (Boonzaier, 1987). Most of the communities in the Namaqualand reserves

never accepted the 'economic units' initiative because it further marginalised the majority of communal farmers. In Leliefontein, popular resistance against this scheme was widespread and communal farmers successfully contested the issue in 1988 when they won their case in the Supreme Court on legal technicalities.

Since 1994, land reform and land redistribution depends on the formulation of management plans approved by the Provincial Department of Agriculture, resulting in the promotion of policies not entirely dissimilar to those mentioned above. In 2000, the land reform policy which was previously aimed primarily at poverty alleviation, was realigned within the Land Reform and Agricultural Development Policy (LRAD) to focus on the advancement of 'black emergent commercial farmers' using the commons as 'stepping stones' to fully fledged commercial enterprises (Ministry of Agriculture and Land Affairs, 2000; Rohde et al., 2002). Commercial farms bordering the Leliefontein communal area were acquired by the Department of Land Affairs and made into Municipal commonage to be administered on a different basis from the old commons (Rohde et al., 2001; Lebert, 2005; Lebert and Rohde, 2006). Management rules stipulate a low fixed carrying capacity, adherence to the camp system, a prohibition on kraaling or the erection of shelters for herders and a monthly payment per head of livestock. In practice, stocking rates have been exceeded, prohibitions on herding and erecting stock posts have been ignored and the majority of communal farmers have not benefited from the new farms. Furthermore, many of these farmers have subsequently asserted their traditional rights and moved back with their livestock to the communal areas following a recent drought.

5.2. Environmental and socio-economic impacts of grazing policy in Namaqualand

The effects of this history of land use on the biodiversity and productivity of communal areas such as Leliefontein can be seen in relation to bordering commercial farms. Persistent higher stocking rates have led to a depletion of palatable perennials and loss of vegetative cover, i.e. primary production (Todd and Hoffman, 1999; Riginos and Hoffman, 2003). As a result, communal farmers are more prone to shocks due to fluctuating rainfall patterns and severe weather than commercial farmers (Hahn et al., 2005). The effects on secondary productivity (livestock and livestock products) are more ambiguous, however, communal farmers maintain productivity per hectare comparable with neighbouring commercial farms when the off-take value of milk, meat, firewood and medicinal plants are added to sales of livestock (Rohde et al., 2003; James et al., 2005).

The present state of the Leliefontein commons is the result of grazing practice based on informal rules (rather than grazing policies) and the common sense survival strategies of many generations of communal farmers (Marinus, 1997; Rohde et al., 1999; Debeaudoin, 2001). Now, after several centuries of subjugation and marginalisation, communal farmers in Leliefontein have the opportunity to manage their affairs within a democratic local government system. As a result, the management of the commons is in the process of transformation. Many of the ideas which inform the debate

about the establishment of new grazing rules and regulations are based on commercial farming models and do not take account of the different production objectives or the social conditions of communal farmers (Benjaminsen et al., 2006). Given that communal farmers have consistently rejected such ideas in the past, it is likely that grazing policies which do not have the support of the overwhelming majority of communal farmers will again be ignored or subverted.

There is an obvious need to improve the livelihoods and environmental conditions of communal farmers in Leliefontein. But it seems doubtful that grazing policy has a major role to play in the process of transformation because the primary factor affecting the environment is a severe land shortage and overcrowding of the communal areas. These conditions have enforced rural poverty and necessitated the grazing practices which have created today's communal landscape. In the absence of a radical expansion of the communal land base, it seems likely that macro-economic development and the wider transformation of South African society will play a larger role in shaping the future environment of Leliefontein than even the most enlightened grazing policy.

6. Discussion

Examination of the rangeland policies of Botswana, Lesotho and South Africa shows that even at the site-specific level, the three dominant development paradigms described in the introductory section have been the major drivers of policy formulation. Although the nature of the policy, its scale and formulation have taken different directions in the three countries, there remains a common thread in the assumptions underlying these policies. This thread has survived the transitions from colonial rule to independence and from apartheid to democracy. The land degradation and tragedy of the commons narratives and the modernisation model are obviously more powerful in influencing rangeland policy than the mode of governance.

In the stories of policy development at the three sites, it becomes apparent that policy develops along a trajectory which assumes a need to correct the failure of earlier policies to address the underlying or perceived threats to rangelands of free access, excessive animal numbers and overexploitation, and subsistence modes of production. Yet each new policy in its turn fails to deliver on its promises. We would argue that the result of the policies has been the opposite of their desired effect; the policies have caused the very problems they were formulated to prevent. And in every iteration of the rangeland policy process, they further entrench the problems they seek to avoid.

Where land access in the past was governed by both formal and informal local institutions, policies have sought to replace these institutions with formalized institutions which have their power base and their means of censure outside the communities. These institutions are based on the premise that any infringement of their rules will result in penalties being imposed. However, there is an invariable failure to institute these penalties consistently, which, together with their erosion of traditional regulations, results in less control over access to rangeland resources. The ensuing scenario is one

where free access could very easily lead to the very problems of degradation that the policies hoped to prevent.

Much has been written in recent decades critically examining the scientific basis for range management systems based on trend and succession ecological models. That these critical responses are often based on studies which examine how pastoralists view their environment and respond to changes in it, highlights the ignorance of policy makers of local knowledge around rangeland management. Pastoralists have a deep awareness of their environment and have developed grazing practices, which are adapted to this environment. However, pastoralists have consistently been squeezed onto less land with fewer options for transhumance by government policies. Initially these were policies, which aimed at securing more land for colonists or other favoured minority groups. More recently, the very policies which aimed to address the effects of overcrowding have exacerbated this by restricting the majority of the community to smaller portions of land, and allowing individuals to benefit through privatisation of land or exclusive access to land. In all of the three case studies, those benefiting from more exclusive access to land have retained their rights of access to the commons.

The attempts to privatise the commons or provide individuals with exclusive access to parts of the rangelands is also an outcome of modernisation theory which presumes that commercial models of production will enrich rural people more than existing means of production. These models often fail to explore the impacts of such measures on the livelihoods of the rest of the community.

In all three case studies, there does not appear to be a real development of commercial farming amongst those favoured by the policies. Rather these individuals continue with largely the same objectives as before, which include an avoidance of risk through a diversification of livelihood options, but with an increased number of animals. The development of commercial farmers, focusing their efforts solely on the activity of farming and with high levels of marketing of off-take is rare. Instead they follow centuries old practice of opportunistic grazing management, including transhumance, with greater flexibility than that available to other members of the community. Commercial farmers usually also become the subject of much greater government inputs in terms of technical support and infrastructure. This results in increased inequities within the society. Not only do the commons have to support these large herds on occasion, but also the people with sole access to the commons are likely to benefit less from technical support. This is likely to broaden the gap between the few large herd owners and an increasing number of people with fewer and fewer livestock. It can be argued that at the study sites the attempts to commercialise the rangelands has led to increased wealth gaps and increased levels of unemployment and welfare dependents.

This history of failed rangeland policy is not only prevalent in the three study sites. The three assumptions which inform rangeland policy in Botswana, Lesotho and South Africa, have been the foundation for policy formulation in much of the rangelands of the rest of the world, and have been used as a justification for the displacement of traditional pastoralists. While we recognize that factors such as population growth, increased communication, globalisation and urbanization are

also responsible for many of the challenges facing rangelands, the seeds of many of the conflicts taking place around rangelands globally can be laid at the door of policy decisions based on the three tenets we have described as being the basis for their formulation. We would caution against the development of further policy, sometimes aimed at reducing conflict over grazing resources, if such policy is based on the assumptions that modernisation and existing rangeland management policies based on linear succession models will successfully deal with the challenges. It is time to consider new paradigms on which to base grazing management of communal resources.

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